STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION

1975

Handbook Of Illinois Stratigraphy

H. B. Willman
Elwood Atherton
T. C. Buschbach
Charles Collinson
John C. Frye
M. E. Hopkins
Jerry A. Lineback
Jack A. Simon

BULLETIN 95

ILLINOIS STATE GEOLOGICAL SURVEY

URBANA, ILLINOIS 61801

section of Fulton County, the Tindall School Section of Peoria County, and the Zion Church Section of Adams County. All the deposits of Kansan age found in Illinois are in the Banner Formation.

Banner Formation

The Banner Formation (Willman and Frye, 1970, p. 41) is named for Banner, Peoria County, near which the type section is in the Tindall School Section (SW SW NE sec. 11, 7N-6E). It includes the glacial tills and underlying and intercalated sands, gravels, and silts overlying the Yarmouth Soil and is terminated at the top by the top of the Yarmouth Soil (fig. Q-1E, F). In a few places the formation is as much as 300 feet thick, but it is discontinuous. In west-central Illinois it was deposited by glaciers from the northwest, but in eastern Illinois it was deposited by glaciers from the northeast. Its mineral content reflects the contrasting source areas, and in both regions its mineral content helps to distinguish it from the overlying deposits of Illinoian age. The uppermost part locally contains deposits of clay and silt that accumulated on the till plain surface as accretion-gley, in part during Yarmouthian time, but elsewhere the top of the formation is marked by the in-situ Yarmouth Soil developed in Kansan age deposits. Nine members are recognized in the Banner Formation (fig. Q-4), which is the surface drift in part of western Illinois (fig. Q-5).

Sankoty Sand Member—The Sankoty Sand Member of the Banner Formation (Horberg, 1950a, p. 34) is named for the Sankoty water-well field along the Illinois River on the north side of Peoria, Peoria County, where the type section is in a well (NW SE 15, 9N-8E). It is well sorted, medium- and coarse-grained sand, distinguished by an abundance of highly polished pink quartz grains. It occurs above Paleozoic rocks in the deepest part of the Ancient Mississippi Valley, where it is commonly 100 feet thick but locally is as much as 300 feet thick. It is overlain by tills of the Banner Formation except where they have been removed by erosion. It occurs in central and northwestern Illinois.

Mahomet Sand Member—The Mahomet Sand Member of the Banner Formation (Horberg, 1953, p. 18, 19) is named for Mahomet, Champaign County, near which it is encountered in numerous wells. The Mahomet Sand Member consists of sand and gravel with many silt beds. It lacks the pink quartz grains that occur in the Sankoty Sand. It occupies the deeper parts of the filled Mahomet Valley and its tributaries, mainly in De Witt, Macon, Piatt, and Champaign Counties. It commonly rests on Paleozoic rocks, attains a maximum thickness of 150 feet, and is overlain by till of the Banner Formation.

Harkness Silt Member—The Harkness Silt Member of the Banner Formation (Willman and Frye, 1970, p. 51) is named for Harkness Creek, Adams County, near which the type section is in the Zion Church Section (SE SE SW 9, 3S-8W) (fig. Q-1F). It consists of massive, calcareous, gray and tan silt that contains sparse molluscan fossils. It rests on the Afton Soil and is overlain by glacial till that also is of Kansan age. The member is generally less than 10 feet thick and is exposed at only a few places in central western Illinois.

Hegeler Till Member—The Hegeler Till Member of the Banner Formation (Johnson, 1971, p. 8) is named for the town of Hegeler, Vermilion County, and the type section is in the Harmattan Strip Mine No. 2 (SE SW SW 34, 20N-12W). The unit consists of two zones; the lower is outwash with gravelly till and the upper is silty till. It is up to 8 feet thick, greenish gray, weakly calcareous, generally massive, and compact. It is known in only the one locality, where it rests on rocks of Pennsylvanian age and is overlain by the Belgium Member.

Belgium Member—The Belgium Member of the Banner Formation (Johnson, 1971, p. 10) is named for the town of Belgium, Vermilion County, and the type section is in the same exposure as the Hegeler Till Member. The Belgium Member consists of two units; the lower is massive, tan to dark gray-brown, carbonaceous, calcareous, fossiliferous silt 0.5-2.5 feet thick (Leonard et al., 1971), and the upper is brown calcareous clay 0.5-1.5 feet thick. The Belgium Member is bounded below by the Hegeler Till Member or bedrock and above by the Harmattan Till Member. It is known in only the one locality in central eastern Illinois.

Harmattan Till Member—The Harmattan Till Member of the Banner Formation (Johnson et al., 1971, p. 194) is named for the Harmattan Strip Mine near Danville, Vermilion County (NE 4, 19N-12W). The member is largely gray, calcareous, dense, hard till, but the upper part contains lenticular bodies of gravelly sand. It is bounded at the base by the Belgium Member, or bedrock, and at the top by the Hillery Till Member. In the type area it is 8 feet thick, and it is known definitely only in the Danville area.

Hillery Till Member—The Hillery Till Member of the Banner Formation (Johnson et al., 1971, p. 195) is named for Hillery, Vermilion County, and its type locality is in the Power Plant Section (NW SW SW 21, 20N-12W). The Hillery Till Member is reddish brown, calcareous, massive, hard till. The lower part is slightly darker, and the upper commonly contains streaks of silt. The member is 14 feet thick in the Harmattan Strip Mine Section, where it overlies the Harmattan Till Member and is overlain by the Tilton Till Member. It is best known in the Danville area, where it generally rests directly on the bedrock.

Tilton Till Member—The Tilton Till Member of the Banner Formation (Johnson et al., 1971, p. 196) is named for Tilton, Vermilion County, and the type locality is the School House Branch Section (SE NE NE 2, 19N-12W). Where unoxidized, the Tilton Till Member is gray, calcareous, hard, silty, sandy till. The unit contains considerable silt, sand, and gravel, particularly near the upper and lower boundaries. The Tilton Till is commonly overlain at the top by a truncated weathered zone, or an oxidized zone, and in the Harmattan Strip Mine Section it overlies the Hillery Till Member. In Vermilion County the member is about 15 feet thick.

Lierle Clay Member—The Lierle Clay Member of the Banner Formation (Willman and Frye, 1970, p. 52) is named for Lierle Creek, Adams County (SE cor. SW 33, 1S-6W). It is predominantly accretion-gley consisting of gray clay, silt, and some sand. The Lierle is noncalcareous and is characterized by abundant pedogenic montmorillonite. It overlies the till of the Banner Formation and is overlain by deposits of Illinoian age. It is discontinuous, is less than 10 feet thick, and is exposed at many localities in western Illinois, where the surface drift is Kansan. The unit is part of the Yarmouth Soil but is an accretionary deposit made largely throughout Yarmouthian time.

Yarmouthian Stage

The Yarmouthian Stage is based on the Yarmouth Soil, described by Leverett (1898c, p. 176) from its occurrence in a well section near Yarmouth, Des Moines County, Iowa. It was described as the interval of weathering and organic accumulation separating the Kansan and Illinoian glacial deposits. The adjec-